Eastern States Consortium North Meeting
Mass Highway District Office
811 North King Street
Northampton, MA
March 7, 2006

Attendees:

- DOT
  - CT – Mark Brothwell, 860-258-0378, mark.brothwell@po.state.ct.us
  - MA – Nick Antoniadis, 617-973-8439, nick.antoniadis@mhd.state.ma.us
  - MA – George Palubinskas, 617-973-8449, george.palubinskas@mhd.state.ma.us
  - ME – John Winslow, 207-865-0164, john.winslow@maine.gov
  - NH – Jim Amrol, 603-271-1656, jim.amrol@dot.state.nh.us
  - NH – Alan Rawson, 603-271-3151, arawson@dot.state.nh.us (Chairman)
  - NY- David Kearney, 518-457-8065, dkearney@dot.state.ny.us
  - NY - Ed Lucas, 518-457-4590, elucas@dot.state.ny.us
  - NY – Michael Mathioudakis, 518-457-9800, mmathioudakis@dot.state.ny.us
  - RI – Jan J. Bak, 401-222-2524-4136, jjbak@dot.state.ri.us
  - VT – Chris Rea, 802-828-6923, chris.rea@state.vt.us
- FHWA
  - NH – David Hall, 603-228-3057-106, david.r.hall@fhwa.dot.gov
- Industry
  - ADS – Terry McElfresh, 513-896-2065, terry.mcelfresh@ads-pipe.com
  - ADS – Bob Slicker, 614-658-0250, bob.slicker@ads-pipe.com

Introductions:

Alan Rawson welcomed all to the meeting and had each attendee introduce himself. Bob Slicker stated that Mike Pluimer from the Plastic Pipe Institute was not able to attend this meeting and that he would be representing the industry in Mike's absence.

Industry Presentation:

Bob Slicker presented the 2005 changes to M252 and M294. The revised standards are currently waiting to be printed and should be available prior to the August AASHTO Subcommittee on Materials meeting.

The changes are:

- M252
  - The cell class has been revised from 324420C to 424420C to be consistent with revisions to ASTM D3350. The change revises the density range from >0.940 - 0.955 to >0.947- 0.955g/cm^3.
  - The sample conditioning period has been revised from 40 hours to 24 hours to be consistent with M294
  - Pipe Stiffness has been revised from requiring three specimens, one tested with the seam parallel to the plates, one with seam at 45^0, and one

with the seam at 90^0 to two specimens, one with the seam parallel to the plates and the other with the seam at 90^0 to the plates. The unit of measurement has also been revised from Newtons/meter/mm to kPa.
    - Pipe Flattening, which is a continuation of the pipe stiffness test, has been revised to be consistent with the changes to the stiffness test.
    - Brittleness test units of measure have been changed from 45 joules to 33 ft-lbs to be consistent with industry standards.
    - The liner thickness measurement procedure has been revised to allow the use of digital micrometers and ultrasonic thickness gauges and has also been changed from requiring 8 measurements around the circumference to four measurements.
    - The inside diameter measurement procedure has been changed from two measurements on two sections to two measurements on one section, one across the seams and the other at 90^0 to the seam.
- M294
    - A definition and test procedure have been added for delaminations.

Bob Slicker also presented additional changes the industry would like to see made in M252 and M294. The proposed changes are:

- M252
    - Delete the elongation resistance test. He reported this test was developed for pipe used in agricultural applications where installation techniques sometimes resulted in pulling the pipe. He believes it is not relevant for installation methods used in highway work.
    - Delete the low temperature flexibility test. He is not aware of any pipe failing this test, and it is not an issue with highway installations.
    - Delete the ESCR requirement for the pipe. The properties tested with this procedure are tested in the basic resin and he is not aware of any pipe failing this test.
    - Revise the number of samples for the pipe stiffness/flattening test from two to one and test this one with the seams at 90^0 to the plane of the plates. Experience has proven this test position always produces the minimum test value.
- M294
    - Revise the number of samples for the pipe stiffness/flattening test from three to two samples, one tested with the seams parallel to the plates and the other tested with the seams at 90^0 to the plates.
    - Reduce the pipe stiffness/flattening sample length from a minimum of 1 nominal diameter plus any additional length to make the cut at the next full corrugation to ½ the nominal diameter plus the additional length necessary to cut at a full corrugation for pipes of 24” or larger diameter. An option suggested by NH would be to make the minimum test length ½ diameter plus the additional length so that manufactures could decide what size pipe to test using longer specimens. Agreement was reached to condition two specimens at the Ludlow plant for demonstration testing on 3/8/06, one cut at ½ the nominal diameter and the other at 1 diameter. Bob

Slicker presented a summary of testing of pipes from 24" to 60", tested for stiffness and flattening, at both ½ and 1 nominal diameter sample lengths. The data showed little difference in the test results, with the shorter specimen usually having a value slightly less than the full diameter length specimen. He said he would provide individual test reports for the testing summarized in the handout if anyone wanted them.

- Delete the ESCR requirement since resin tests sufficiently cover this property, test failures are not known, and the test is difficult and dangerous for larger diameter pipe.
- Limit the joint integrity test to welded bell/ spigot pipe. He is not aware of test failure with inline extruded bells and spigots, but there may be some flaws in welded bells and spigots that that the testing would reveal. Generally pipe gasket material prevents entry of the feeler gauge.
- Delete the alignment requirement in the joint and fittings test procedures since it serves no useful purpose.
- Revise the inside diameter measurement form eight measurements around the circumference of two sections to two measurements on one section, one across the seams and the other at 90^0 to the seams.

After discussing the proposed changes for M252 and M294, Bob Slicker presented changes the industry would like the ESC to make in its QC requirements. These include:

- Revise the resin sampling to a single sample if the same material is being used to produce both pipes sampled during the plant inspection.
- Limit wall thickness measurements to four locations (already acceptable for M252 pipe based on the 2005 change in the standard).
- Limit the inside diameter measurement to two measurements, one across the seam and the other at 90^0 to the seam (already acceptable for M252 pipe based on the 2005 change to standard).
- Revise the pipe stiffness/flattening to two test specimens, one with seam parallel to the plates and the other with the seam at 90^0 to the plates.
- Delete the elongation resistance test
- Delete the low temperature flexibility test
- Delete the ESCR test
- Limit the joint integrity test to welded bell/spigot pipe.

During the discussion of these proposals, NY asked Bob Slicker for the industry's thoughts about limiting the amount of regrind used to 20% of the resin stream. He responded that it would be an additional control he did not believe is necessary. He reported that the addition of regrind tends to increase the NCLS value of the resin, but his company is not sure why this is so. He also said that some plants use most of their regrind on the day shift when more experienced help is present, and he feared a set percentage of regrind might make this impossible for some plants. He also reported that all Hancor plants are presently using only single stream resins to produce all 24" and larger pipe. They may be allowed to use pre-certified ADS blends in the future.

Recognizing that the ESC cannot establish a program with test requirements different than established in AASHTO M252 and M294, Bob Slicker recommended that his earlier proposed revisions to the ESC program be implemented through reducing the testing frequency. This would be an interim measure until AASHTO decides on the proposed modifications to M252 and M294. He recommended the following changes to the frequencies of testing in the ESC Requirements:

- Change the unit weight form 3 tests per shift to 2 per shift (this is not a required test in M252 or M294).
- Revise wall thickness measurements from 3 per shift to 2 per shift
- Revise elongation testing from weekly to quarterly
- Revise low temperature flexibility from weekly to quarterly
- Revise ESCR from weekly to semiannual
- Limit joint integrity testing to welded bell/spigot pipe or revise the frequency for this test from weekly to quarterly

NY pointed out that reduced testing frequency on tests that are known not to fail would allow concentrating effort on other tests or process controls that can contribute to pipe quality.

NH asked Mr. Slicker if the industry would support adding the ESC requirements to the QC/QA plan in the Appendix of M294 (section 12 of M252). Bob Slicker responded that some provisions might be appropriate, but manufacturers should have the latitude to do what is needed to control their production.

In response to a question from NY about recycled resin in pipe, Bob Slicker responded that both post-consumer and post-industrial material could be used with appropriate controls. Post-industrial is the most consistent and should be evaluated first, but supplies are limited. Pelletized post-consumer material can be consistent. There are economic and environmental advantages to using recycled resins.

NH asked Bob Slicker if the industry saw any benefit in the ESC program. He said he believes that it has resulted in more uniformity in the 14 states involved and more discipline in the industry. It was not a big change except that a set of known guidelines was established that the industry was expected to follow. He also said there have been some problems with what he called dictatorial requirements such as having to include resumes in the Quality System Manuals.

ME asked why manufacturers used a coded system for the embossed date on pipes rather than a digital date. Bob Slicker responded that the dial system could be changed on the fly from outside the mold, not interrupting production. He also stated that inspectors can get the necessary information form the sticker placed on the inside of each stick. This sticker includes the date and other identification information.

The proposed PPI/NTPEP/ESC merger was not discussed during this part of the meeting.

Closed Session with ESC Members Only:

Ed Lucas discussed industry's proposed changes to the tests required in M252 and M294. It is not appropriate to eliminate tests required by AASHTO because many state specifications include the AASHTO specifications. If the ESC eliminated tests, then the ESC manufacturer qualifications would not be in conformance with AASHTO. He suggested that the ESC should consider modifying the frequency of tests that are of little benefit for pipe used in highway applications, and that this would be an interim measure until the standards can be modified. He also recommended that the ESC be active in seeking standard modification because the group is large enough to exert influence, but not as large as the national group it might become through merger. The larger national group would take longer to come to a consensus on recommending changes.

Ed Lucas also discussed three topics where he has noted or recommends changes to improve the ESC program. These are:

- His ESC plant inspection procedure has changed over time. He has found the best procedure is to take the pipe identification information recorded on Form 6 and then check the test records for production a week on either side of the sample's production date to get an idea of testing frequency.
- He recommends developing a partnership between the states doing a particular inspection and between the inspectors and the manufacturer. The partnership would be developed to the point that a manufacturer would notify the lead inspector of impending problems, such as a resin supply problem. The manufacturer and the inspectors would work through the issue with guidance as necessary from the ESC.
- He suggested that different testing frequencies be developed for manufacturers that have been audited and are performing well and those that are new to the ESC program or have not done well in audits. The second group would be on probation. The first group would test at the modified ESC frequencies discussed below, while the probationary group would test at the presently existing ESC frequencies. An alternate proposal is to keep the test frequencies the same for all manufacturers, but increase the frequency of audits for new plants or plants that have had unsatisfactory audits.

David Kearney then led a discussion of the modifications to the existing ESC test frequencies. The frequency modifications are based on industry recommendations on the value of the test, the value of tests from North Carolina testing experience, and the recommended changes set during the earlier Southern ESC meeting. The recommended frequencies as a result of this northern meeting are:

- Change the unit weight frequency from 3 per shift to 2 per shift
- Change the wall thickness frequency from 3 per shift to 2 per shift
- Change the Elongation frequency from 1 per week to 1 per year and propose elimination to AASHTO
- Change the Low Temperature Flexibility frequency from 1 per week to 1 per year and propose elimination to AASHTO

- Leave Joint Integrity test frequency at 1 per week for welded bell/spigot joints and change it from 1 per week to quarterly for integral bell and spigot joints.
- Change the ESCR test frequency from 1 per week to annual and propose elimination to AASHTO

The above proposed frequencies are the same as proposed at the southern ESC meeting, except for the Elongation test for which the south proposed a change to quarterly. The ESC chairman will resolve this difference.

In addition to proposing the elimination of the above noted tests to AASHTO, NY recommended that Type D pipe be eliminated. It is not produced by any ESC supplier, and perhaps by no domestic supplier. NY stated they would investigate the production and use of this pipe for consideration of a proposal to AASHTO. It was also recommended that the ultrasonic wall thickness test procedure in appendix 1 of the ESC Requirements be presented to AASHTO for inclusion in M252 and M294. NY agreed to review the procedure with industry prior to the ESC making a recommendation to AASHTO.

David Kearney then reviewed the new page 3 of form 9, which is a label to accompany ESC test samples sent for third party testing. VT suggested that a control number be placed on each sample and form, comprised of the six digit date, manufacturer, and plant.

David Hall went through the ESC Requirements dated 2/15/06 and pointed out the changes in requirements for 2006 QSM submittals. The major changes are:

- Elimination of NTPEP as the coordinator for the third party sample testing.
- Re-write of Section III, Quality Control of Raw Materials.
- Adding resin and traceability requirements for couplings and fittings.
- Adding a requirement that each test be made at least once on each lot of pipe.
- Adding a requirement that the manufacturer keep copies of previous ESC audit reports at the inspected facility for 5 years.
- Adding detailed requirements for documentation of QC personnel training and competency reviews.

Actions necessary when split samples either do not compare well or fail test requirements were discussed. It was concluded that lead inspection state has the primary responsibility to see that the manufacturer resolves these issues. The independent test results will be posted on the ESC web site. The ESC requirements should be modified to require that the manufacturer report his test results to the lead inspecting state within a 10 day period of the inspection. With both pieces of information, the lead state inspector can make the comparisons and ask for resolution of differences when necessary.

The following changes for 2007 were discussed:

- Modifying the test frequencies as agreed to between the north and south meetings
- Encouraging the development of partnerships between the inspecting states and between the inspecting states and the manufacturer. This would aid in resolving audit findings and unanticipated problems in manufacturing pipe as they occur.

- Establishing a probationary status with a different frequency of testing for new manufacturers and those that do not do well in audits. NY suggested that a letter be written to manufacturers that typically do well in audits, giving them the opportunity to re-submit their QSM's using the proposed revised testing frequencies. As an alternate, NH suggested that test frequencies be the same for all manufacturers, but that audits be scheduled more often at new facilities and where QC operations were found deficient.

Mr. Lucas led a discussion of the proposed PPI/NTPEP/ESC merger. He suggested that each attendee read the southern meeting minutes to see the remarks Mr. Pluimer and he made about the topic at the earlier meeting. Ed reported that Cecil Jones, David Meggers, and Alan Rawson support merging the three programs into a national program. He and Bob Slicker are on the NCHRP panel guiding the consultant proposing the merger structure, Tri-Environmental. The current merger proposal is based on a survey that went out to many people, but Ed did not have opportunity to review the survey before it was sent out and believes it was biased because Tri-Environmental was more familiar with the industry program than the ESC program. He objected to using a testing program developed for geosynthetics as part of the testing frequency program for pipe. The merger proposal contains several new concepts such as master audits, state audits, and detailed test equipment audits. The NCHRP panel is presently evaluating the proposal and is not ready to move on to developing the training manual. The process needs to slow down so it can be done correctly. Ed also reported that the audit forms are not satisfactory, and that the program is very costly. Ed believes the merger can work, but a lot of work needs to be done to get to a satisfactory resolution of panel concerns. NH suggested that perhaps AMRL could be included to do the laboratory equipment audits. Another concern expressed was that the merger program might work with ESC states, but other states might not be interested and might be lax in doing any inspections.

NH will write a letter to New York asking that Ed Lucas attend the NTPEP annual meeting since his input on the merger and other issues will be important.

South Carolina and Georgia might be interested in joining the ESC. Although contact has not been made with Ohio, Mr. Lucas said he would contact them and see if they would join the ESC.

Alan Rawson reported that David Hall wants to resign as ESC secretary at the end of 2006 and, with this change, he would have to have someone take over as the Lead State for the ESC. He suggested that New York or North Carolina consider taking over as the Lead State at the end of 2006. Another option would be to establish a pooled fund project among the ESC states to provide funds to hire an administrator, possibly Tri-Environmental. Another option of having two lead states was discussed, but it was concluded that this might produce confusion in administering the program.

The following plant inspection assignments were made for 2006, after which the meeting was adjourned at about 4:00 PM:

ESC 2006 Inspection Assignments	
Lab or Plant	Inspecting State (see notes)
ADS, Inc	
Wooster, OH	NY, PA, & VA (?),
Ludlow, MA	MA, & NY
Muncy, PA	PA, NY, & NJ (?)
Buena Vista, VA	VA (?), NC (?), & DE (?)
Bessemer City, NC	NC (?), VA (?), & MD (?)
New Miami, OH Lab	NY, PA, & VA (?)
Baughman Tile Co	
Paulding, OH	NY, PA, & VA (?)
Cervelle Drainage Products, Inc.	
Lordstown, Ohio	NY, PA, & MD (?)
Hancor, Inc	
Waverly, NY	NY, PA, NJ (?) & MD (?)
Springfield, VT	VT, NY & NH
Findlay, OH (TR 172)	NY, PA, & VA (?)
Findlay, OH (Olive St.)	NY, PA, & VA (?)
Mebane, NC	NC (?), VA (?), & DE (?)
Findlay, OH Lab (Olive St.)	NY, PA, & VA (?)
Haviland Drainage Products	
Haviland, Ohio	Not Yet in ESC
Lane Enterprises	
Shippensburg, PA	PA, NY, & NC (Completed)
Soleno Inc.	
Ibberville, QC	NY, NH, & VT
St. Nicolas	Plant out of service
McAdam, NB	ME, NH, & RI
Haggersville, Ont	NY

Notes:

- First state named has the primary inspection responsibility, others are assisting or are training.
- (?) Indicates state has not been contacted or has not committed to inspection.
- NY may be primary or assisting state at some Ohio inspections (Wooster, New Miami, Paulding, and 3 Findlay Hancor facilities).